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Case of Science Direct**

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A FRAMEWORK FOR THE INTRODUCTION OF E-GOVERNMENT RESEARCH AREAS: CASE OF SCIENCE DIRECT

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Abstract – Nowadays Information Technology (IT) allows governments to serve citizens in a more timely, effective and cost efficient way. In this effort, exploring a taxonomy for e-government research topics can directs future related researches. The purpose of this research is to provide e-government scholars and students a broad overview through introduction of a framework for the recent e-government research areas. Given the volume of literature produced in this field, it is hard to provide a comprehensive coverage. This paper seeks to provide a broad, representative study of literature that illustrates significant distribution in the field. Entries were identified through searches of scientific databases. Coverage for this column includes 76 papers, which are in regard to e-government from 2002 until 2007.

1. Introduction

Electronic government (e-government) is the provision of government information and services through the Internet to citizens and businesses and among government agencies. This electronic manifestation of government offers new levels of access to government information and services [26]. The e-government wave has caught the attention of not only the software and consultancy industry, but also in the policy institutions, public administration, and by an increasing number of researchers, at conferences, and workshops. Although there indeed was solid research on IT in government during the 1970s, 1980s, and 1990s and limited new fundamental new research perspectives has been introduced with the e-government wave, there is a momentum and mass of researchers that could form the basis for breaking new research grounds in studying the new face of government. [3]

In this paper, after introducing a taxonomy for e-government researches, we will present each area of it, then they will be defined and described, and significant samples will be discussed; finally, in table.2 the summary of the framework including the name, definition and list of related papers in the sample for each category will be presented.

2- E-Government Framework

In order to achieve this research's purpose that is exploring a framework for taxonomy of e-government research, we got a sample with the size of 76 .These items is taken from e-government papers from 2002 until 2007 published in Science Direct database. After taking the sample following stages are followed: (1) studying the papers, (2) trying to stick appropriate labels on the papers, and (3) categorizing tagged papers based on their similarity.

This process is followed for three times. Table 1 shows final categorizing of the papers taken with their frequencies.

Table 1. Categorization of papers based on their labels.

Row	Label Name	Frequency	Percent
1	Developmental	17	22 %
2	Impressional	19	25 %
3	Political	16	21 %
4	Behavioral	16	21 %
5	Managerial	8	11 %
The Total Population		76	100 %

3- Description of Framework categories

In this section, we will describe each category, and introduce milestones in each category (See Table 2).

3.1. Developmental

Three of the most important stages toward implementation of e-government are planning, designing and development. In our sample there are 17 papers about planning and development which means the importance of this category in the framework. All papers are published with the topic about planning, constructing, maturity, implementing, architecting, emergence, initiatives and issues, infrastructures, growth and development of e-government.

There are many papers in this category, for example Davies presented a case study of the developing role of e-government strategy experienced by a major UK Central Government Department [6]. Also Lee and Layne in 2001 presented a four stages model offering a path e-government to follow and suggest challenges, from the organization and technical aspects [39]. Later, Andersen proposed a maturity model changed the focus of e-government to the front-end of e-government and away from a technical integration issue. [3]

3.2. Impressional

E-government has a long spectrum of effects consists of useful and harmful. In this regard, there are benefits and losses, strengths and weaknesses, opportunities and challenges, and threats. Moreover economic aspects, assessment and analysis, evaluation, and given lessons are related in this column. Also measuring the performance of e-government is important because evaluation of e-government should be monitored. In our sample, there are 19 papers in this field.

In 2005 Montgna J.M. presened a framework for evaluating e-government initiatives, his frameworks are useful because they allow us to organize and integrate the various elements of a problem in a sample and consistent way, assuring the attainment of the pursued outcomes [46]. Another example in this category is Menno de Jong and Leo Lentz, they found using scenario-based method to evaluate municipal websites inevitably leads to the conclusion that municipalities still have a long way to go when it comes to user friendly internet

communications with citizens [34]. Furthermore, in this regard Gupta M.P. in 2003 presented a framework to direct the evaluation of e-government projects in the future. The case study of New Delhi Municipal Corporation (NDMC) provides an illustrative reference for future evaluation. This model would be beneficial for evaluating any other municipality in the India and also comparing its performance with municipalities of other countries. [21]

3.3. Political

Almost all papers in this field are about political and legal aspects of e-government, legislation, motivators, guidelines, security policies, requirement principles, strategies, authentication, rules, e-democracy and e-terrorism. It has the weight about 21 percents in our sample.

In this category, for example, John Ashlin in 2004 reported a case study on regulations e-government. He says: "Regulating the e-government enables the public to search, view, and comment on hundreds of proposed federal regulations from approximately 160 federal agencies through a single web site" [4]. Selwyn Russell and his colleagues analyzed available solutions for PKIs (Public Key Validations) interoperability. They shown still involve processing of long chains of certificates, either at the receiving computer or by an outsourced entity [57]. Also, Gerhard Strejcek in 2002 showed that current projects concerning e-government in individual member countries of the European union are difficult to sell off as a harmonized approach. [67]

3.4. Behavioral

Citizens are one of the most important bases of e-government systems, because if they don't use e-government services, e-government efforts are practically failed. Readiness of citizens, for example, has strong effects on their reception. All the papers published about social and cultural aspects of e-government, e-readiness, trust, user acceptance and adoption, public and private sectors interests, information poverty, citizens attributes, motivation factors, intentions, personalization, customer orientation and risk perception in e-government are placed in this column.

In this category, for example, Shin Yuan Hung in 2006 in his paper "Determinants of user acceptance of e-government services: The case of online tax filing and payment system" tried to identify the factors that determine the public's acceptance of e-government services; In this paper, author describes that: "As the Online Tax Filing and Payment System (OTFPS) is well-known e-government service in Taiwan, using a theoretical model based on the theory of planned behavior aimed them to Identify the determinants for acceptance, examine the causal relationships among the variables of acceptance behavior, and explore the relative importance of each determinant for both those who use the OTFPS and those who do not" [24]. Moreover, Michael Parent in 2005 in his paper "Building citizens trust through e-government" tested the extent to which online initiatives have succeeded in increasing trust and external political efficacy in voters. An internet-based survey of 182 Canadian voters showed that using the internet to transact with the e-government had a significantly positive impact on trust and external political efficacy. [48]

3.5. Managerial

Management can leads e-government systems to be successful or failed, therefore the importance of management is its capability to determine the destiny of the e-government

efforts. Papers regarding change management, knowledge management, managing e-government lifecycle, customer relationship management, managing issues, Distribution channel management, information resource management, infrastructure and information management in e-government are put in this field.

For instance, Vassilakis in 2003 in the paper "A framework for managing the lifecycle of transactional e-government services" presented experiences from developing and maintaining a set of electronic services for the Greek Ministry of Finance. The traditional software engineering approaches employed in the first development phases proved to be inadequate in handling all aspects related to the lifecycle for electronic services. In the second phases they used a new approach, together with appropriate software tools, which allowed for using higher levels of abstraction, enhancing this maintainability, portability and reusability of the project results, and reducing overall development time [72]. In other instance, Shan Ling Pan in 2006 presented the paper "Customer relationship Management (CRM) in e-government: A relational perspective". The strategic management of customer relations in their case study, National IT Literacy Program (NITLP) referred to an evaluation of the relational value contained within any thread in a web relations so as to develop a relational tool that maximizes relational incentives to induce customer behavior that aids the e-government organization in accomplishing it's goals [47]. Furthermore, Kristin N. Frey in his 2005 paper "Distribution channel management (DCM) in e-government addressing federal information policy issues" presented two case studies that demonstrate the very different approaches that two federal agencies had taken to DCM in their e-government efforts.[15]

Table 2: Summary of Research Papers

<i>category</i>	<i>Concept</i>	<i>List of papers</i>
Developmental	planning, constructing, maturity, implementing, architecting, emergence, initiatives and issues, Infrastructures, growth and development of e-government	Maguire et al. (2005), Aldrich et al. (2002), Sepic et al.(2002), Wimmer et al. (2002), Thompson et al. (2002), Joia et al. (2004), Stratford (2004), Sharifi et al. (2004), Gil-Garcia et al. (2005), Reddick et al. (2005), Beynon-Davies (2005), Kaliontzoglou et al. (2005), Andersen et al. (2006), Dias et al. (2006), Votis et al. (2006), Guijarro et al. (2007), Vassilakis et al.(2006).
Impressional	benefits and losses, strengths & weaknesses, opportunities & challenges, threats, economic aspects, assessment and analysis, evaluation, and given lessons in e-government	Thompson (2002), Jaeger et al. (2003), Gupta et al. (2003), Devadoss et al. (2002), Cairns et al. (2004), Seilheimer et al.. (2004), Ma et al. (2005), Ya Ni et al. (2005), Evans et al. (2005), Montagna (2005), Jong et al. (2006), Jaeger (2006), Evans et al. (2006), Picci (2006), Quinn et al.. (2006), Eschenfelder et al.(2007), Lee et al. (2007), Barnes et al. (2006), Reddich et al. (2006).
Political	political and legal aspects of e-government, legislation, motivators, guidelines, security policies, requirement principles, strategies, authentication, rules, e-democracy and e-terrorism	Tanaka et al. (2005), Jaeger (2002), Jaeger et al. (2003), Strejcek et al. (2002), Russell et al. (2003), Ashlin et al.(2004), Jaeger (2004), Lambrinouidakis et al. (2003), Halchin (2004), Seifert et al. (2004), Rose (2004), Jaeger (2005), Jaeger et al. (2006), Curzon et al. (2005), Gil-Garcia et al.(2006), McNeal et al.(2006).

Behavioral	social and cultural aspects of e-government , e-readiness, trust, user acceptance and adoption, public and private sectors interests, information poverty, citizens attributes, motivation factors, intentions, personalization, customer orientation and risk perception in e-government	Hung et al. (2006), Potter (2002), Doty et al. (2002), Wang (2002), Salem (2003), Fu et al. (2004), Jaeger et al. (2004), Parent et al. (2005), Akman et al.(2005), Tung et al. (2005), Schedler et al. (2006), Shi (2006), Horst et al. (2006), Lee et al. (2006), Pieterse et al. (2007), Fu et al.(2006).
Managerial	change management, knowledge management, managing e-government lifecycle, customer relationship management, managing issues, distribution channel management, information resource management, infrastructure and information management in e-government	Pan et al. (2006), Kim et al.(2006), Liao et al. (2005), Frey et al.(2005), Reddick (2006), Scholl (2006), King (2007), Vassilakis et al. (2003).

Conclusion

This paper presented a taxonomy for e-government researches. Our proposal provides a means of addressing many of scholars and researchers in this field to select the category of study. We introduced a five part framework for introducing fields of study in e-government. Proposed framework is composed of Developmental, Impressional, Political, Behavioral and Managerial columns; moreover, topics related to each column are presented in the context

References

- [1] Akman, I., Yazici, A., Mishra, A., & Arifoglu, A. (2005). E-Government: A global view and an empirical evaluation of some attributes of citizens. *Government Information Quarterly*.
- [2] Aldrich, D., Bertot, J. C., & McClure C. R. (2002). E-Government: initiatives, developments, and issues. *Government Information Quarterly*.
- [3] Andersen, K. V., & Henriksen, H. Z. (2006). E-government maturity models: Extension of the Layne and Lee model. *Government Information Quarterly*.
- [4] Ashlin, J., Davis, R., Dalecky, S., Grasso, R., LaPlant, L., Morales, O., Nelson, J., White, M., & Whitt, S. A. (2004). Regulations.gov federal regulatory portal. *Journal of Government Information*.
- [5] Barnes, S. J., & Vidgen, R. T. (2006). Data triangulation and web quality metrics: A case study in e-government. *Information Management*.
- [6] Beynon-Davies, P. (2005). Constructing electronic government: the case of the UK inland revenue. *International Journal of Information Management*.
- [7] Cairns, G., Wright, G., Bradfield, R., Heijden, K. V. D., & Burt, G. (2004). Exploring e-government futures through the application of scenario planning. *Technological Forecasting and Social Change*.
- [8] Curzon, P., Wilson, J., & Whitney, G. (2005). Successful strategies of older people for finding information. *Interacting with Computers*.
- [9] Devadoss, P. R., Pan, S. L., & Huang, J. C. (2002). Structural analysis of e-government initiatives: a case study of SCO. *Government Information Quarterly*. *Decision Support Systems*.
- [10] Dias, G. P., & Rafael, J. A. (2006). A simple model and a distributed architecture for realizing one-stop e-government. *Electronic Commerce Research and Applications*.
- [11] Doty, P., & Erdelez, S. (2002). Information micro-practices in Texas rural courts: methods and issues for E-Government. *Government Information Quarterly*.
- [12] Eschenfelder, K. R., & Miller, C. A. (2007). Examining the role of Web site information in facilitating different citizen-government relationships: A case study of state Chronic Wasting Disease Web sites. *Government Information Quarterly*.

- [13] Evans, D., & Yen, D. C. (2005). E-government: An analysis for implementation: Framework for understanding cultural and social impact. *Government Information Quarterly*.
- [14] Evans, D., & Yen, D. C. (2006). E-government: Evolving relationship of citizens and government, domestic, and international development. *Government Information Quarterly*.
- [15] Frey, K. N., & Holden, S. H. (2005). Distribution channel management in e-government: Addressing federal information policy issues. *Government Information Quarterly*.
- [16] Fu, J. R., Chao, W. P., & Farn, C. K. (2004). Determinants of taxpayers' adoption of electronic filing methods in Taiwan: An exploratory study. *Journal of Government Information*.
- [17] Fu, J. R., Farn, C. K., & Chao, W. P. (2006). Acceptance of electronic tax filing: A study of taxpayer intentions. *Information Management*.
- [18] Gil-Garcia, J. R., & Martinez-Moyano, I. J. (2006). Understanding the evolution of e-government: The influence of systems of rules on public sector dynamics. *Government Information Quarterly*.
- [19] Gil-Garcia, J. R., & Pardo, T. A. (2005). E-government success factors: Mapping practical tools to theoretical foundations. *Government Information Quarterly*.
- [20] Guijarro, L. (2007). Interoperability frameworks and enterprise architectures in e-government initiatives in Europe and the United States. *Government Information Quarterly*.
- [21] Gupta, M. P., & Jana, D. (2003). E-government evaluation: A framework and case study. *Government Information Quarterly*.
- [22] Halchin, L. E. (2004). Electronic government: Government capability and terrorist resource. *Government Information Quarterly*.
- [23] Horst, M., Kuttschreuter, M., & Gutteling, J. M. (2006). Perceived usefulness, personal experiences, risk perception and trust as determinants of adoption of e-government services in the Netherlands. *Computers in Human Behavior*.
- [24] Hung, S. Y., Chang, C. M., & Yu, T. J. (2006). Determinants of user acceptance of the e-Government services: The case of online tax filing and payment system. *Government Information Quarterly*.
- [25] Jaeger, P. T. (2002). Constitutional principles and E-Government: an opinion about possible effects of Federalism and the separation of powers on E-Government policies. *Government Information Quarterly*.
- [26] Jaeger, P. T. (2004). Beyond section 508: The spectrum of legal requirements for accessible e-government Web sites in the United States. *Journal of Government Information*.
- [27] Jaeger, P. T. (2005). Deliberative democracy and the conceptual foundations of electronic government. *Government Information Quarterly*.
- [28] Jaeger, P. T. (2006). Assessing section 508 compliance on federal e-government Web sites: A multi-method, user-centred evaluation of accessibility for persons with disabilities. *Government Information Quarterly*.
- [29] Jaeger, P. T., & Thompson, K. M. (2003). E-government around the world: Lessons, Challenges, and future directions. *Government Information Quarterly*.
- [30] Jaeger, P. T., & Thompson, K. M. (2004). Social information behavior and the democratic process: Information poverty, normative behavior, and electronic government in the United States. *Library & Information Science Research*.
- [31] Jaeger, P. T., Bertot, J. C., & McClure, C. R. (2003). The impact of the USA patriot act on collection and analysis of personal information under the foreign Intelligence Surveillance Act. *Government Information Quarterly*.
- [32] Jaeger, P. T., Bertot, J. C., McClure, C. R., & Langa, L. A. (2006). The policy implications of internet connectivity in Public Libraries. *Government Information Quarterly*.
- [33] Joia, L. A. (2004). Developing Government-to-Government enterprise in Brazil: a heuristic model drawn from multiple case studies. *International Journal of Information Management*.
- [34] Jong, M. D., & Lentz, L. (2006). Scenario evaluation of municipal web sites: Development and use of an expert-focused evaluation tool. *Government Information Quarterly*.

- [35] Kaliontzoglou, A., Sklavos, P., Karantjias, T., & Polemi, D. (2005). A secure e-Government platform architecture for small to medium sized public organizations. *Electronic Commerce Research And Applications*.
- [36] Kim, H. J., Pan, G., & Pan, S. L. (2006). Managing IT-enabled transformation in the public sector: A case study on e-government in South Korea. *Government Information Quarterly*.
- [37] King, S. F. (2007). Citizens as customers: Exploring the future of CRM in UK local government. *Government Information Quarterly*.
- [38] Lambrinouidakis, C., Gritzalis, S., Dridi, F., & Pernul, G. (2003). Security requirements for e-government services: a methodological approach for developing a common PKI-based security policy. *Computer Communications*.
- [39] Layne, K., & Lee, J. (2001). Developing fully functional E-government: A four stage model. *Government Information Quarterly*.
- [40] Lee, J., & Kim, J. (2007). Grounded theory analysis of e-government initiatives: Exploring perceptions of government authorities. *Government Information Quarterly*.
- [41] Lee, J., & Rao, H. R. (2006). Perceived risks, counter-beliefs, and intentions to use anti-/counter-terrorism websites: An exploratory study of government-citizens online interactions in a turbulent environment. *Decision Support Systems*.
- [42] Liao, S. H., & Jeng, H. P. (2005). E-government implementation : Business contract legal support for Taiwanese businessmen in Mainland China. *Government Information Quarterly*.
- [43] Ma, L., Chung, J., & Thorson, S. (2005). E-government in China: Bringing economic development through administrative reform. *Government Information Quarterly*.
- [44] Maguire, D. J., & Longley, P. A. (2005). The emergence of geoportals and their role in spatial data infrastructures. *Journal of Computers, Environment and Urban Systems*.
- [45] McNeal, R., schmeida, M., & Hale, K. (2006). E-disclosure and electronic campaign finance reform: Lessons from the diffusion of e-government policies in the states. *Government Information Quarterly*.
- [46] Montagna, J. M. (2005). A framework for the assessment and analysis of electronic government proposals. *Electronic Commerce Research And Applications*.
- [47] Pan, S. L., Tan, C. W., & Lim, E. T. K. (2006). Customer relationship management (CRM) in e-government: a relational perspective. *Decision Support Systems*.
- [48] Parent, M., Vandebeek, A. C., & Gemino, A. C. (2005). Building citizen trust through e-government. *Government Information Quarterly*.
- [49] Picci, L. (2006). The quantitative evaluation of economic impact of e-government: A structural modeling approach. *Information Economics And Policy*.
- [50] Pieterse, W., Ebbers, W., & Dijk, J. V. (2007). Personalization in the public sector An inventory of organizational and user obstacles towards personalization of electronic services in the public sector. *Government Information Quarterly*.
- [51] Potter, A. (2002). Accessibility of Alabama government Web sites. *Journal of Government Information*.
- [52] Quinn, A. C., & Ramasubramanian, L. (2006). Information technologies and civic engagement: Perspectives from librarianship and planning. *Government Information Quarterly*.
- [53] Reddick, C. G., & Frank, H. A. (2006). The perceived impacts of e-government on U.S. cities: A Survey of Florida and Texas City managers. *Government Information Quarterly*.
- [54] Reddick, C. G. (2005). Citizen interaction with e-government: From the streets to servers?. *Government Information Quarterly*.
- [55] Reddick, C. G. (2006). Information resource managers and E-government effectiveness: A survey of Texas state agencies. *Government Information Quarterly*.
- [56] Rose, M. (2004). Democratizing information and communication by implementing e-government in Indonesian regional government. *The International Information & Library review*.
- [57] Russell, S., Dawson, E., Okamoto, E., & Lopez, J. (2003). Virtual certificates and synthetic certificates: new paradigms for improving public key validation. *Computer Communications*.

- [58] Salem, J. A. (2003). Public and private sectors interests in e-government: a look at the DOE's PubSCIENCE. *Government Information Quarterly*.
- [59] Schedler, K., & Summermatter, L. (2006). Customer orientation in electronic government: Motives and effects. *Government Information Quarterly*.
- [60] Scholl, H. J. (2006). Electronic government: Information management capacity, organizational capabilities, and the sourcing mix. *Government Information Quarterly*.
- [61] Seifert, J. W., & Relyea, H. C. (2004). Do you know where your information is in the homeland security era?. *Government Information Quarterly*.
- [62] Seilheimer, S. D. (2004). Productive development of world wide web sited intended for international use. *International Journal of Information Management*.
- [63] Sepic, R., & Kase, K. (2002). The National Biological Information Infrastructure as an E-Government tool. *Government Information Quarterly*.
- [64] Sharifi, H., & Zarei, B. (2004). An adaptive approach for implementing e-government in I.R. Iran. *Journal of Government Information*.
- [65] Shi, Y. (2006). The accessibility of Chinese local government Web sites: An exploratory study. *Government Information Quarterly*.
- [66] Stratford, J. (2004). Developments in US Federal E-Government Efforts. *Journal of Government Information*.
- [67] Strejcek, G., & Theil, M. (2002). Technology push, legislation pull? E-government in the European Union. *Decision Support Systems*.
- [68] Tanaka, H., Matsuura, K., & Sudoh, O. (2005). Vulnerability and information security investment: An empirical analysis of e-local government in Japan. *Journal of Accounting and Public Policy*.
- [69] Thompson, C. (2002). Enlisting on-line residents: Expanding the boundaries of e-government in a Japanese rural township. *Government Information Quarterly*.
- [70] Thompson, C. S. (2002). Recruiting cyber townspeople: local government and the internet in a rural Japanese township. *Technology In Society*.
- [71] Tung, L. L., & Rieck, O. (2005). Adoption of electronic government services among business organizations in Singapore. *Strategic Information Systems*.
- [72] Vassilakis, C., Laskaridis, G., Lepouras, G., Rouvas, S., & Georgiadis, P. (2003). A framework for managing the lifecycle of transactional e-government services. *Telematics And Informatics*.
- [73] Vassilakis, C., Lepouras, G., & Halatsis, C. (2006). A knowledge-based approach for developing multi-channel e-government services. *Electronic Commerce Research And Applicatons*.
- [74] Votis, K., Alexakos, C., Vassiliadis, B., & Likothanassis, S. (2006). An ontologically principled service-oriented architecture for managing distributed e-government nodes. *Journal of Network and Computer Applications*.
- [75] Wang, Y. S. (2002). The adoption of electronic tax filing systems: an empirical study. *Government Information Quarterly*.
- [76] Wimmer, M. A. (2002). A European perspective towards online one-stop government: the eGOV project. *Electronic Commerce Research And Applicatons*.
- [77] Ya Ni, A., & Tat-Kei Ho, A. (2005). Challenges in e-government development: Lessons from two information kiosk project. *Government Information Quarterly*.

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